

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in Beta vulgaris

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	ACONITIC-ACID	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	ADENINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	ADIPIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	ALANINE	Root	560	4338	0.4412042274099843	USDA's Ag Handbook 8 and sequelae)
12	ALLANTOIN	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	ALPHA-LINOLENIC-ACID	Root	40	315	-0.6222019681781472	USDA's Ag Handbook 8 and sequelae)
15	ALPHA-LINOLENIC-ACID	Leaf	316	3160	-0.7100367130624211	
32	ALPHA-TOCOPHEROL	Leaf	321	439	0.35927304562664447	Jim Duke's personal files.*
32	ALPHA-TOCOPHEROL	Root	0.5	3.6	-1.1769646985527407	
5	ALUMINUM	Root	1	420	-0.08712633399832509	
14	ARGININE	Root	380	2997	-0.3886990633481032	USDA's Ag Handbook 8 and sequelae)
2	ARSENIC	Root	0.01	0.08	-0.20408211266611795	ACTA AGRIC SCAND SUPPL 22: 1980
112	ASCORBIC-ACID	Root	50	868	-0.14978616745086681	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
112	ASCORBIC-ACID	Leaf	120	3696	-0.10097839366506348	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
3	ASPARTIC-ACID	Root	1060	8360	-0.20719379324946055	USDA's Ag Handbook 8 and sequelae)
53	BETA-CAROTENE	Root	--	438	2.3642545272136704	
47	BETA-SITOSTEROL	Leaf	--	130	-1.0063608461922844	
47	BETA-SITOSTEROL	Root	--	--		Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
3	BETAGARIN	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
14	BETAINE	Root	700	3000		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	BETALAMIC-ACID	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
5	BETANIN	Root	--	--		Stuppner, H., Egger, R. 1996. Application of Capillary Zone Electrophoresis to the Analysis of Betalains from Beta vulgaris. J. Chromatogr, 735: 409-413.
5	BETANIN	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
2	BETAVULGARIN	Leaf	--	--		
4	BORON	Root	1	80	2.0686336024652223	
3	CADMIUM	Root	0.01	0.33	-0.5322309593207406	ACTA AGRIC SCAND SUPPL 22: 1980

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102	CAFFEIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	CALCIUM	Leaf	700	17368	-0.0730545959775421	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
28	CALCIUM	Root	120	4200	-0.35076486765280085	
2	CAMPESTEROL	Leaf	--	--		Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
77	CHLOROGENIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
24	CHROMIUM	Root	0.001	0.33	-0.49416528207760696	ACTA AGRIC SCAND SUPPL 22: 1980
23	CITRIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	COBALT	Root	0.001	0.42	-0.5360925141125041	ACTA AGRIC SCAND SUPPL 22: 1980
2	CONIFERIN	Seed	--	--		
2	CONIFERIN	Plant	--	--		
2	CONIFERIN	Root	--	--		
12	COPPER	Root	0.6	17	0.5844884448285068	
2	CYSTINE	Root	180	1420	1.181476498312086	USDA's Ag Handbook 8 and sequelae)
17	FARNESOL	Root Essent. Oil	--	--		

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17	FARNESOL	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
61	FERULIC-ACID	Leaf	--	--		
15	FIBER	Leaf	4000	279000	1.452590411305937	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FIBER	Root	8000	90000	0.04193139754777649	
15	FOLACIN	Root	0.8	8	1.879478715404913	USDA's Ag Handbook 8 and sequelae)
12	FORMALDEHYDE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
22	GABA	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GALACTOSE	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GALACTOSE	Root	--	--		
7	GLUCOSE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	GLUTAMIC-ACID	Root	3930	10500	1.3370135300475792	USDA's Ag Handbook 8 and sequelae)
12	GLYCINE	Root	290	2287	-0.3761711380939947	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	GLYOXYLIC-ACID	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
1	GUANINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	HISTIDINE	Root	200	1577	-0.20948317136853128	USDA's Ag Handbook 8 and sequelae)
8	INOSINE	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
6	IRON	Root	5	165	-0.20194277471449604	
6	IRON	Leaf	7	392	0.07303896870284142	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
1	ISOBETANIN	Root	--	--		Stuppner, H., Egger, R. 1996. Application of Capillary Zone Electrophoresis to the Analysis of Betalains from Beta vulgaris. J. Chromatogr, 735: 409-413.
3	ISOLEUCINE	Root	440	3470	0.00013896281933737457	USDA's Ag Handbook 8 and sequelae)
75	KAEMPFEROL	Plant	--	--		
1	L-AZETIDINE-2-CARBOXYLIC-ACID	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
2	LEUCINE	Root	630	4968	0.3558822256981897	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Root	460	3628	0.18872562307250482	USDA's Ag Handbook 8 and sequelae)
11	LITHIUM	Root	0.36	0.6		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	LYSINE	Root	530	4180	0.4061670574806671	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Root	130	4200	0.8718291096104009	
1	MALONIC-ACID	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
14	MANGANESE	Root	3	90	0.5288104069776015	
1	MELILOTIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	MERCURY	Root	--	0.016	-0.45460780356449726	ACTA AGRIC SCAND SUPPL 22: 1980
15	METHIONINE	Root	170	1341	0.4540719233816342	USDA's Ag Handbook 8 and sequelae)
2	MOLYBDENUM	Root	--	0.1	-0.46089530570591497	ACTA AGRIC SCAND SUPPL 22: 1980
13	MUFA	Root	270	2219	-0.042210550390970464	USDA's Ag Handbook 8 and sequelae)
39	NIACIN	Leaf	4	68	-0.3588352402371107	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
39	NIACIN	Root	2	32	-0.5286048579830713	
3	NICKEL	Root	--	2.5	0.23545089462187527	
18	OLEIC-ACID	Root	270	2129	0.028613646599413095	USDA's Ag Handbook 8 and sequelae)
5	ORNITHINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	OXALIC-ACID	Root	3000	15000	-0.40279401570173323	Watt, J.M. and Breyer-Brandwijk, M.G. 1962. The Medicinal and Poisonous Plants of Southern and Eastern Africa. E. & S. Livingstone, Ltd. Edinburg & London. 1457 pp.
25	P-COUMARIC-ACID	Plant	--	--		
13	P-HYDROXY-BENZOIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
13	PALMITIC-ACID	Root	210	1656	-0.32320450211702656	USDA's Ag Handbook 8 and sequelae)
11	PANTOTHENIC-ACID	Root	1.5	11.8	-0.822025786396079	USDA's Ag Handbook 8 and sequelae)
7	PHENYLALANINE	Root	420	3312	0.37733807919126017	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Leaf	290	5946	0.17930367212570686	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	PHOSPHORUS	Root	260	45580	7.390730333501335	
2	PHYTOSTEROLS	Root	250	1972	2.6750890076116427	USDA's Ag Handbook 8 and sequelae)
2	PHYTOSTEROLS	Leaf	--	210	-0.7631206262135088	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
14	POTASSIUM	Leaf	4380	61798	1.3889349229084433	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
14	POTASSIUM	Root	3033	50000	2.5057949026475304	
4	PUFA	Root	500	3943	-0.48476339853379624	USDA's Ag Handbook 8 and sequelae)
176	QUERCETIN	Plant	--	--		

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1	QUINIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	RAFFINOSE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	RIBOFLAVIN	Leaf	1.7	26	-0.05598689717877004	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	RIBOFLAVIN	Root	0.2	3.9	-0.0381979129798729	
7	SALICYLATES	Root	2	15	-0.6489446664726789	
34	SALICYLIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
5	SAPONINS	Root	--	58000	0.10991363498738571	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
60	SELENIUM	Root	--	0.002	-0.3623106990048751	ACTA AGRIC SCAND SUPPL 22: 1980
1	SERINE	Root	540	4259	0.5044937361249509	USDA's Ag Handbook 8 and sequelae)
4	SILICON	Root	1	83	0.038371684428601074	ACTA AGRIC SCAND SUPPL 22: 1980
1	SODIUM	Root	590	6705	2.60917608632812	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Leaf	1300	16571	2.2958387060549112	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
8	STEARIC-ACID	Root	10	79	-0.6950094104911273	USDA's Ag Handbook 8 and sequelae)

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14	SUCROSE	Root	270000	270000	1.482333586643039	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
14	SULFUR	Root	130	2000	-0.21353007063213605	ACTA AGRIC SCAND SUPPL 22: 1980
6	SYRINGIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
6	TARTARIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
31	THIAMIN	Leaf	0.6	14	1.1869303740705777	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
31	THIAMIN	Root	0.1	2.4	-0.38024650234914276	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	THREONINE	Root	440	3470	-0.07145998210477424	USDA's Ag Handbook 8 and sequelae)
4	TIN	Root	0.8	2.8	-1.3911987269995683	
29	TRYPTOPHAN	Root	170	1341	1.6215555191215911	USDA's Ag Handbook 8 and sequelae)
8	TYROSINE	Root	350	2760	1.213042723775461	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Root	520	4100	0.016624403740957434	USDA's Ag Handbook 8 and sequelae)
24	VANILLIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	VANILLIN	Root	--	--		

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3	XYLOSE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
77	ZINC	Root	3	70	2.0068925301263634	